

TWO SATYRID BUTTERFLIES BELONGING TO *NEOPE* FROM JAPAN.  
 THEIR SCIENTIFIC NAMES,  
 TYPE-LOCALITIES AND DIFFERENTIATIONS\*  
 (LEPIDOPTERA : SATYRIDAE)

AKIRA TAKAHASHI  
 126, 4-chôme, Momoyama-chô, Ôbu City, Aichi Pref., 474 JAPAN

### INTRODUCTION

Three "species" belonging to the genus *Neope* were described from Japan: *goschkevitschii* by Ménétriès (1857), *japonica* and *niphonica* by Buter (1867, 1881). They were long regarded as geographical or seasonal variations of a single species of "*goschkevitschii*", until M. Takahashi separated it into two distinct species on account of the differences in the morphologies from the early stages to the adult as well as in the larval food-plants.

It is, however, still unsolved what scientific names are valid for the two *Neope* species newly separated. The author had opportunities to examine all of the original descriptions of the Japanese species or subspecies belonging to genus *Neope*, and the type-specimens of both *japonica* and *niphonica* preserved in the collections of the British Museum (Natural History). In this paper, the author casts light on the scientific names of *Neope* species occurring in Japan by these studies and their type-localities from the historical view-points.

### PROFILE OF GENUS *NEOPE*

Moore in 1857 established the genus *Enope*, but the name *Enope* was invalid and the generic name *Neope* was introduced as a replacement for it in 1866 by himself. Butler also introduced the same generic name as a replacement for the invalid *Enope* Moore in 1867. He cited that the same name had been already introduced by Moore in the previous year (1866), but did assyn no reason for the re-description. Neither Moore (1857, 1866) nor Butler (1867) designated a type-species. In 1869, Butler selected *Lasiommata* (?) *bhadra* Moore to the type-species.

The species composing *Neope* are so closely allied to some of the species of the genus *Lethe* both in morphology and in distribution that some lepidopterists had questioned the propriety of separating *Neope* as an independent genus from *Lethe* until Fruhstorfer (1911) remained *Neope* as a distinct genus. Thirteen species are known, of which the majority is found in the Himalayan countries, China and Formosa.

### *NEOPE GOSCHKEVITSCHII*\*\* (MÉNÉTRIÈS, 1857)

In the last days of the Tokugawa shogunate, several foreign ships occasionally came to Japan in search of trade.

In the summer of 1853, the Russian envoy, Admiral E. V. Putiatin, hearing of Harris's antecedent visit to Japan, came to Nagasaki. In February 1854, the second U.S. mission commanded by Perry was sent to Japan, and conversations were held at Kanagawa which led to a treaty signed on March 31. Under the terms of the treaty, Japan agreed to open the ports of Shimoda and Hakodate.

\*) Synopsis of this paper was presented at the 20th Annual Meeting of the Japan Lepidopterological Society (November 11th 1973, Sakai)

\*\*) often misspelt as "gaschkevitschii", "goshkevitshii", "goschkevitschii", etc. ....

Putiatin visited Japan again in 1754 to present Russian demands for trade. He entered Osaka harbour, Tempôzan, on Nov. 8, then brought his four ships to Shimoda under shogunal government orders. He arrived in Shimoda port on Dec. 4, 1854.

Ivan Aleksandrovich Goncharov (1812-1891), a 19th-century Russian novelist, made his voyage to Japan in 1852-1855 as a secretary of Putiatin. This was described in "Fregat Pallada (the Frigate Pallade)" in 1858.

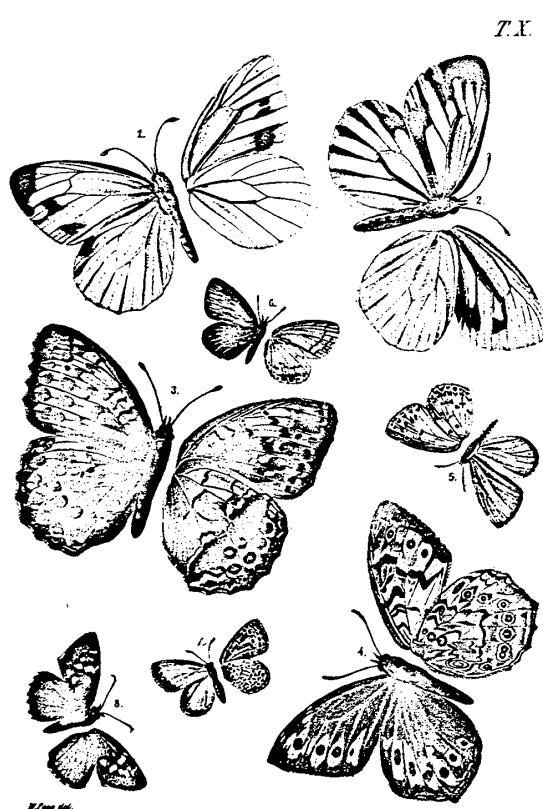
In this mission, Iosif Antonovich Goschkevitsch (1814-1875) participated as a Chinese-Russian translator. He had three occasions to visit Japan: Nagasaki in 1853, Shimoda and Heda in 1854-1855, and as the first Russian consul at Hakodate in 1858-1865. He is known as the author of the first Japanese Russian dictionary\*) in cooperation with Kôsai Tachibana and also as the first introducer of photography to Japan.

During Putiatin and Goschkevitsch's stay at Shimoda (Dec. 23, 1854), a violent earthquake (called Ansei Earthquake) struck the Tôkaido District. Its magnitude was estimated to be 8.4 and the source was situated at 137.8° E, 34.1° N. A giant tidal wave (tsunami) swept the Pacific coast of the Central Japan. On the next day (Dec. 24, 1854) the second severe earthquake accompanying a tidal wave struck the Central Japan again, of which magnitude was 8.4 and the source was at 135.6° E, 33.2° N. Izu District (east part of Shizuoka Prefecture) was nearly obliterated by these two earthquakes and tidal waves, where approximately five thousand houses were destroyed and thirty thousand people were killed. The principal shock produced the wave of sufficient amplitude to demonish Putiatin's vessel "Diana" in port at Shimoda, located near the sources of the earthquakes. (Fig. 5)

\*) 和魯通言比考, published in 1857 (Fig. 4)



Fig. 1. Geographical names and positions cited in the paper.



1. *Pieris melde*, Nob. n. sp. 2. *Pen. 3. Agynaia laudice*, Pall.  
4. *Lasiomata Goschkevitschii*, Nob. 5. *Lycaena lacton?*, (Cram.)  
6. *L. helleta*, Nob. 7. *L. argia*, Nob. 8. *Lycaena delphys*, Nob.

Fig. 2. The original plate, illustrating *Neope goschkevitschii* (Ménétriès, 1857).



Fig. 3. Mr. and Mrs. Goschkevitsch.

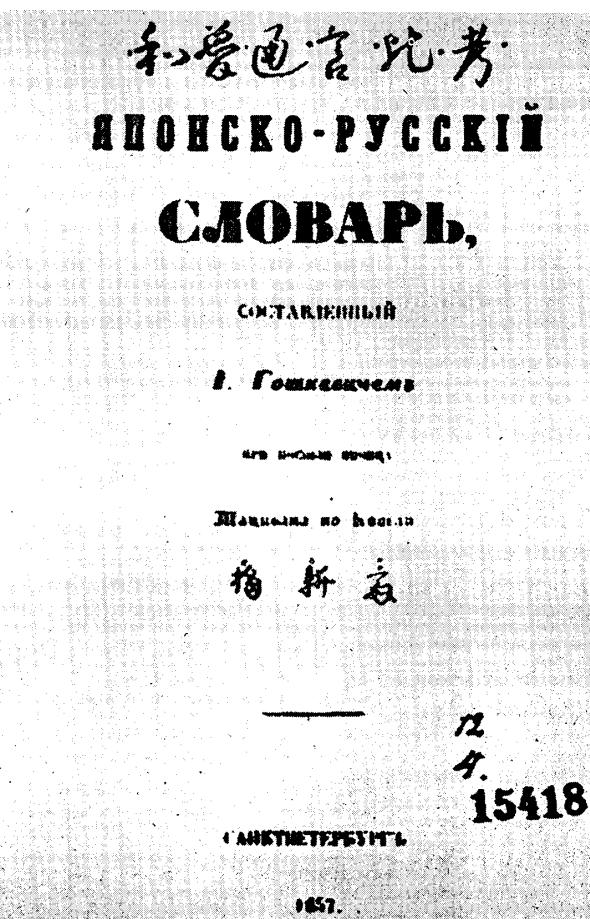


Fig. 4. The first Japanese-Russian dictionary, edited by Goschkevitsch and K. Tachibana, and published in 1857.



Fig. 5. Shimoda port struck by the disastrous "Ansei Earthquake" with tidal wave on December 1855 (drawn by A. F. Mozhaisky, a Russian naval officer missioned with Putiatin and Goschkevitsch).

Their unavoidable circumstances obliged them to stay at the Izu peninsula until July 14 1855, when they left Shimoda for home by a German steamer. Meanwhile, Putiatin succeeded in concluding a treaty of friendship with Tokugawa shogunal government (Nichi-Ro Washin Jôyaku) in December 1854, and in building a new ship "Heda". Heda derived its origin from the name of a village, where this new ship was built. "Diana" had been submerged near there.

Goschkevitsch collected many butterflies at this temporary place of residence, of which the majority was certainly captured in the spring or the early summer of 1855. He sent these specimens to his mother country and dedicated them to the Imperial Museum of the Academy of Sciences of St. Peterburg (1914-1924 Petrograd, called Leningrad at present).

Edouard Ménétriès in 1857 listed the specimens of Lepidoptera preserved in the Museum, and described six Japanese species as new to science. They comprise "*Pieris melete*" (Pieridae), "*Argynnис laodice*", "*Limenitis japonica*" (Nymphalidae), "*Lycaena argia*" (Lycaenidae), "*Pyrgus tethys*" (Hesperiidae) and "*Lasiomma goschkevitschii*" in question. It is mentioned in this paper that these Lepidoptera were collected by Goschkevitsch himself.

In Japan, *goschkevitschii* is two-brooded; the first brood is on the wing in April and May, and the second emergence occurs in July and August. Ménétriès described and illustrated (Fig. 2) the vernal form of *goschkevitschii*. Both in *melete* and in *argia*, many broods are produced during the year. These two species shown in the figures of Ménétriès's original paper are apparently aestival forms (Fig. 2). The aestival forms of *melete* begin to have their appearance on the wing in May. *A. laodice* is single-brooded and appears on the wing from the end of May in the warmer districts such as Izu.

On the basis of Goschkevitsch's itineraries and Ménétriès's description, it may be given as a conclusion that all of these six new Japanese butterflies were collected at Shimoda, Heda or its neighbourhood on the Izu peninsula (Shizuoka Prefecture, Central Honshû) in the late spring and the early summer of 1855.

#### **NEOPE JAPONICA BUTLER (1867) AND NEOPE NIPHONICA BUTLER (1881)**

In 1867, Butler described *Neope japonica* from Hakodate (erroneously spelt as "Hakodadi"\*) as a new species. He differentiated it from the allied species *N. moorei* occurring in East Indies in its smaller size, less angular hindwings, smaller ocelli, and darker basal markings. The description of *japonica* was not accompanied by any illustrations. The male type-specimen preserved in the British Museum (Natural History) is shown in Fig. 6. This is the spring form and agrees with *goschkevitschii* in many respects. Accordingly there is no doubt that *japonica* is a synonym of *goschkevitschii*. No special informations are written on the labels. Butler was presumably unaware of Ménétriès's description on *goschkevitschii*.

In 1881, Butler reported a large series of Japanese Lepidoptera collected by Charles Maries, in which another new species of *Neope* was described. He separated it from *goschkevitschii*, characterizing as follows; "allied to *N. goschkevitschii*, rather smaller and shorter in wing, above considerably darker, with orange, instead of white fringe. Primaries below yellower, all the markings thicker and darker, the discoidal markings more uniform, the third being less zigzag or 3-shaped: secondaries with the discal ocelli smaller and far more uniform in size; the base, abdominal area, subbasal spots, central area washed with lilac; the pale band just in front of the ocelli spotted with brown and tinted with lilacine below the angle. Expanse of wings 2 inches 7-8 lines. The natural position for this species is between *N. goschkevitschii* and *N. afretis*. We have eight males and one female, which I have compared with twelve *N. goschkevitschii*, and find the differences constant".

The type-locality was Nikkô, Tochigi Prefecture, Kantô District, Central Honshû. Butler did not illustrate the type-specimens. Fig. 7 shows the male and female syntypes in the collections of the British Museum.

*N. niphonica* is representative of the other species recently established, and is considered to be the valid name for it.

\*) "箱館" before 1869, "函館" at present, in Hokkaidô.

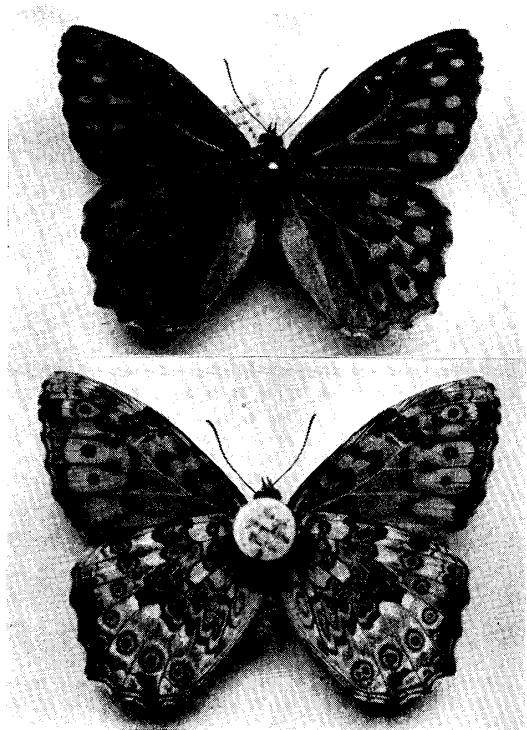


Fig. 6. *Neope japonica*, ♂. Type-specimen, preserved in the British Museum (Natural History).

#### CHARACTERS OF TWO JAPANESE *NEOPE* SPECIES

Recent studies on *Neope* have disclosed that two independent though allied species inhabit in Japan: One is *N. goschkevitschii* (Ménétreiès, 1857) and the other is *N. niphonica* Butler, 1881.

*N. goschkevitschii* (Japanese name "**Sato-Kimadara-Hikage**" meaning the Lowland Yellow-Speckled Satyrid Butterfly): This butterfly occurs widely over the main islands of Japan, that is Hokkaidô, Honshû, Shikoku and Kyushû. The butterfly has been found neither from the isolated smaller islands nor from abroad, being regarded that it is endemic to Japan.

There are two broods of this species in the year as a rule. The main haunt of this species is the margin of a plantation or wood of lowlands from coastal areas to moderate altitude, ranging 0-1,000m above sea-level. At higher altitude over 1,000m, it is single-brooded and found seldom. The larval food-plants are some species of bamboos, *Arundinaria*, *Phyllostachys*, or *Sasa* (Gramineae). Adults have a fancy for visiting resinous sap that oozes from oak trees (Fig. 10) or rotten fruit and for resting on the trunks or various kinds of the piles. Flowers are generally inattractive to the butterflies.

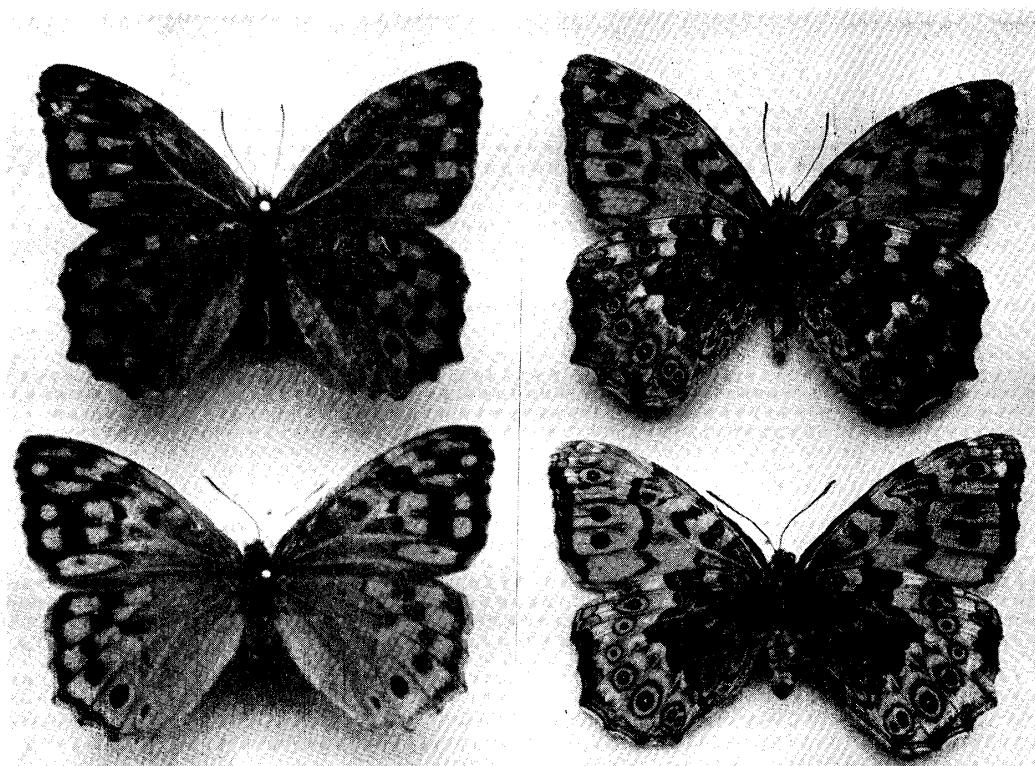


Fig. 7. *Neope niphonica*, ♂ and ♀. Syntypes, preserved in the British Museum (Natural History). Type-locality: Nikko.

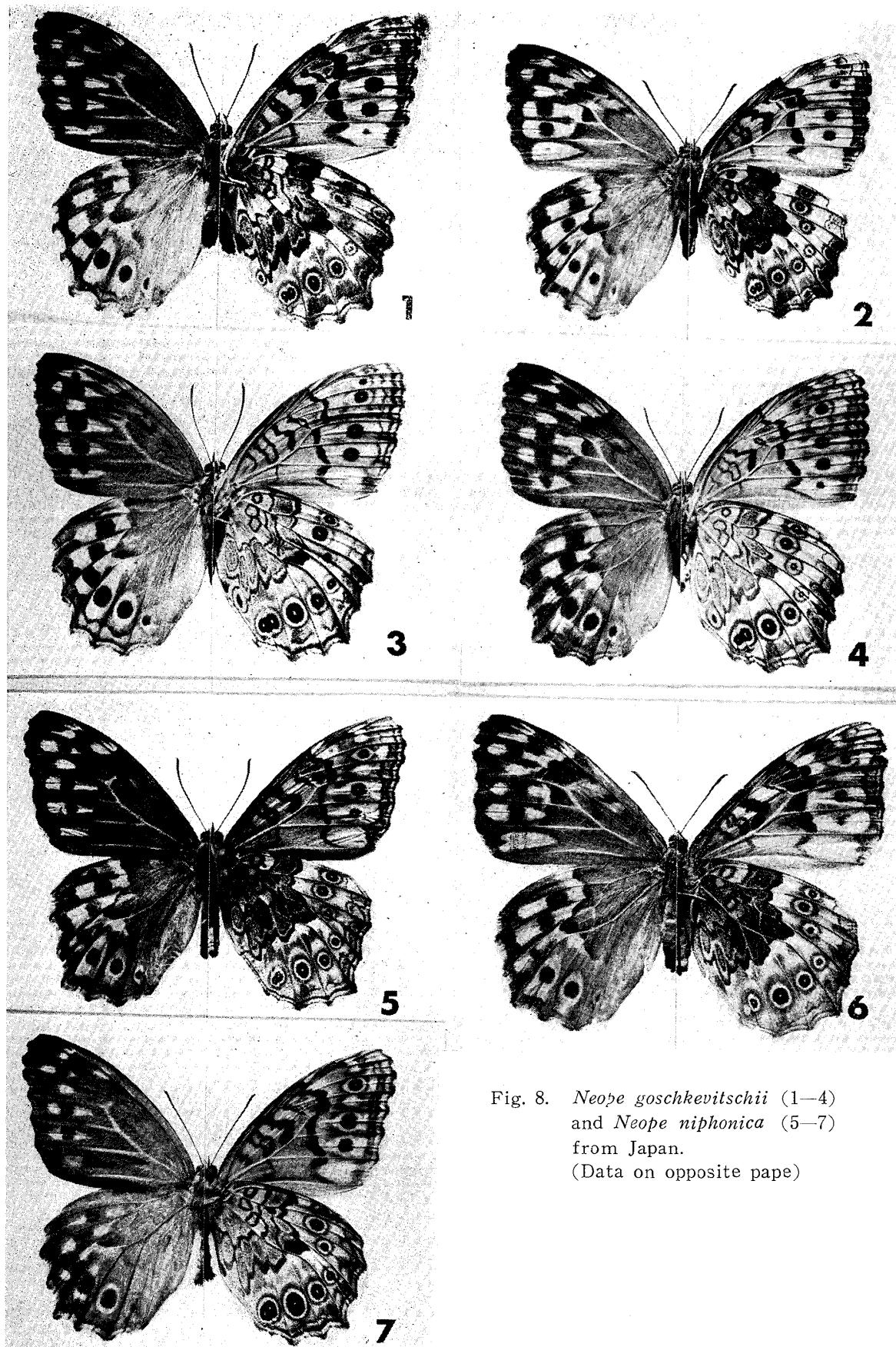
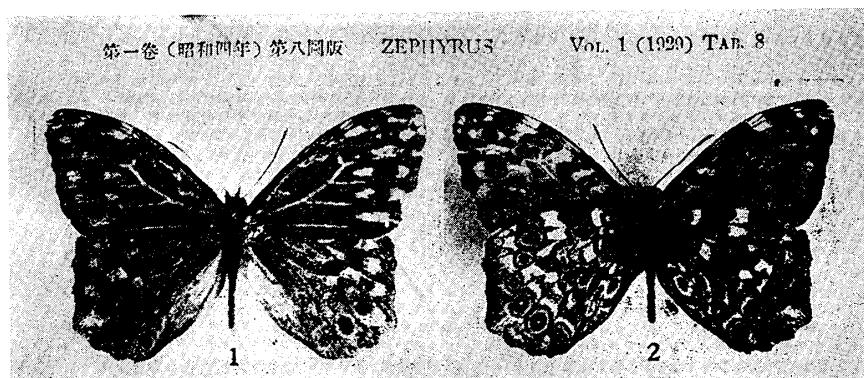


Fig. 8. *Neope goschkevitschii* (1-4)  
and *Neope niphonica* (5-7)  
from Japan.  
(Data on opposite page)

Fig. 9. *Neope niphonica marumoi* Esaki & Umeno, 1929. Type-specimen.Table 1. Differentiation of wing patterns between the two Japanese *Neope* species

		<i>N. goschkevitschii</i>	<i>N. niphonica</i>
undersides hindwing	space 1b : black spot in post-discal yellow marking	usually present	usually absent
	space 5 : black spot in post-discal yellow marking	located centrally	located toward wing-base
	yellow stripes on veins	broader, esp. in spring-brooded female	narrower, esp. in summer-brooded male
	♀-space 3 : basal end of fish-shaped yellow marking	concave inwardly	convex inwardly
uppersides forewing	space 2 : base	usually yellow	usually suffused with brownish scales
	space 5 : submarginal white spot	usually absent, replaced by ground colour	usually prominent, rarely yellowish
	three ring markings at base	located nearly linearly	located in internally convex C-shape
	yellow rings surrounding ocelli	broader, esp. in summer brood	narrower, esp. in spring brood
uppersides forewing	ocelli in spaces 4, 5	usually smaller than ocellus in space 7	much the same as or larger than ocellus in space 7
	submarginal colour in spaces 2, 4, 5	much darker than discal area	less dark than discal area

Fig. 8. *N. goschkevitschii* and *N. niphonica* (cont'd from opposite page)

1. *N. goschkevitschii*, spring form, ♂.  
(Obu City, Aichi Pref., altitude 46m, June 5, 1973)
2. *N. goschkevitschii*, spring form, ♀.  
(Mizunami City, Gifu Pref., altitude 160m, May 3, 1964)
3. *N. goschkevitschii*, summer form, ♂.  
(Obu City, Aichi Pref., altitude 46m, Aug., 16, 1973)
4. *N. goschkevitschii*, summer form, ♀.  
(Omiya-chô, Watarai-gun, Mie Pref., altitude 100m, Aug. 30, 1970)
5. *N. niphonica*, spring form, ♂.  
(Kaida-mura, Kiso-gun, Nagano Pref., altitude 1200m, June 13, 1976)
6. *N. niphonica*, spring form, ♀.  
(Hirayu, Kamitakara-mura, Yoshiki-gun, Gifu Pref., altitude 1400m, July 25, 1964)
7. *N. niphonica*, summer form, ♂.  
(Koido pass, Tsukechi-chô, Ena-gun, Gifu Pref., 700m, Aug. 22, 1969)

All specimens were captured by the author and deposited in the author's collections.

***N. niphonica*** (Japanese name "Yama-Kimadara-Hikage" meaning the Montane Yellow-Speckled Satyrid Butterfly): This butterfly is generally distributed throughout the mountainous parts of Japan from Hokkaidô via Honshû and Shikoku southward to Kyûshû. It has been taken in some of their adjoining mountainous islands; that is, Is. Rishiri, Rebun, Yakejiri (Hokkaidô), Sado-gashima I. (Niigata Pref.), and Yaku I. (Kagoshima Pref.). Abroads the species has been known only from Sakhalin and the Kuriles. It requires further study whether the records from "Kirin Manchoukou" and Siberia are genuine or not.

Three local forms were named as those of "goschkevitschii", but they are all to be treated to belong to *niphonica* in a result of studying the original descriptions, the type-specimens and many specimens collected at the type-localities. It will be more appropriate in the present study to deal that at least two of these, ssp. *solowiyofkae*\* Matsumura, 1911 (type-locality: Solowiyofka\*\*, Sakhalin) and ssp. *kurilensis* Matsumura, 1928 (type-locality: Naibo, Kamuikotan, Iturup I., the Kuriles), are rather ill-defined as subspecies. But, ssp. *marumoi* Esaki et Umeno, 1929, occurring at high altitude of Yaku I., is a distinct subspecies. (Fig. 9)

This butterfly only frequents high ground and is rarely found at lower levels less than 500m. It is usually single-brooded, but in some of the warmer areas that this species inhabits it has two broods in the year.

The larval food-plants are, so far as known, restricted to *Sasa* group (Gramineae), with an isolated exception of *Miscanthus sinensis*, which was found at Yaku I. by M. Takahashi (1972). The butterflies are more attached to forest region of mountains where the different species of *Sasa* grow abundantly.

In contrast to *goschkevitschii*, *niphonica* flies less swiftly, prefers to rest on leaves or wet ground, and it is known not seldom to visit flowers. (Fig. 11)

The differences in the wing-pattern between the two species are shown in Table 1.

\* often misspelt as "solowijofkae"

\*\*) Russian name of "Kaitsuka", Ôtomari-chô, Ôtomari-gun (樺太大泊郡大泊町貝塚)

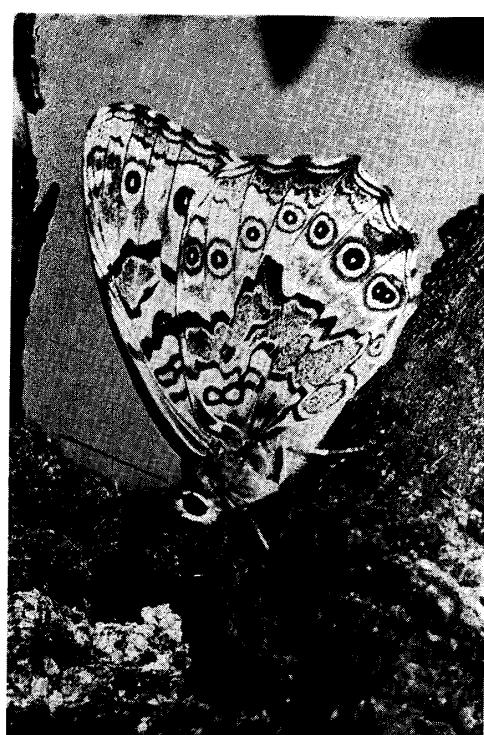


Fig. 10. (Left) *Neope goschkevitschii*, sucking the resinous sap. (Ôbu City, Aichi Pref., altitude 46m, June 1, 1975)

Fig. 11. (Above) *Neope niphonica*, sucking the nectar from the flowers of *Angelica pubescens* Maxim. (Umbelliferae). (Abô pass, the Hida Mountains, Nagano Pref., altitude 1800m, July 25, 1964)

## SUMMARY

In this paper, the author reports the validities of the scientific names of the two Japanese species belonging to the genus *Neope*, which have been recently separated as the distinct species. They should be treated as follows:

*Neope goschkevitschii* (Ménétriès, 1857)

= *N. japonica* Butler, 1867

(Distributions: endemic to the main islands of Japan)

*Neope niphonica* Butler, 1881

= *N. goschkevitschii solowiyofkae* Matsumura, 1911

= *N. goschkevitschii kurilensis* Matsumura, 1928

(Distributions: Sakhalin, the Southern Kuriles and Japan)

ssp. *marumoi* Esaki et Umeno, 1929

(Distribution: Yaku I. of Kagoshima Prefecture)

The type-specimen of *N. goschkevitschii* is proven to be captured by Goschkevitsch himself in the spring of 1855 at Shimoda, Heda or its neighbourhood of Shizuoka Prefecture from the historical analysis of Goschkevitsch's itineraries.

The morphological and ecological characters of these two species are also summarized and introduced.

## Acknowledgements

I am grateful to Prof. Takashi Shirôzu of Kyûshû University and Mr. Mayumi Takahashi for their helpful comments and suggestions. I would like to thank Messrs. R. I. Vane-Wright and P. R. Ackery, staffs of the Entomological Department of the British Museum (Natural History), for allowing me to examine the type-specimens preserved in the collections. My thanks are also due to Dr. Hideo Yamada of Nagoya University School of Medicine, who found Ménétriès's article in the United States and sent me the copy, and Messrs. Masataka Satô, Toshio Mishima and Kaiya Kubo, who gave me valuable advice.

## References

Butler, A. G. (1867) Descriptions of five new genera and some new species of Satyrid Lepidoptera. Ann. Mag. Nat. Hist., Ser. 3, 19 : 161-167, Pl. 4.

Butler, A. G. (1881) On a collection of butterflies from Nikko, Central Japan. Ann. Mag. Nat. Hist., Ser. 5, 7 : 132-140.

Esaki, T. (1922) 南樺太の蝶類. Zool. Mag. (Tokyo), 34 (409) : 898-913.

Esaki, T. (1941) 動物学から見た幕末開国とその前後. 九州国際文化協会会報, 2 : 37-72.

Esaki, T. (1952) 日本昆虫学史話. 江戸時代篇. Shin Konchû (Tokyo), 5 (10) : 21-24.

Esaki, T. & Umeno, A. (1929) Butterflies of the island of Yakushima. Zephyrus (Fukuoka), 1 (3) : 92-102, Pl. 7-8.

Fruhstorfer, H. (1911) In Seitz's "Die Gross-schmetterlinge der Erde. Fauna Indo-Austral." Vol. 9 : 273-452.

Fukuda, H., Kubo, K., Kuzuya, T., Takahashi, A., Takahashi, M., Tanaka, B. & Wakabayashi, M. (1972) Insects' Life in Japan. Vol. 3 Butterflies. Hoikusha Publ. Co., Osaka.

Goncharov, I. V. (1857) 井上満 (1941, 訳) 日本渡航記. 岩波文庫. 岩波書店, 東京.

Guzanov, V. G. (1969) Odysseus from Belorussiya (in Russian). (今日のソ連邦, 1970 (23):26).

Guzanov, V. G. (1972) 橋耕斎とゴシケビチ. 今日のソ連邦, 1972 (4) : 30-31.

Hiura, I. (1969) Butterflies from the Japanese Islands in the Osaka Museum of Natural History. Part 1. Spec. Bull. Osaka Mus. Nat. Hist., 1 : 1-120, Pl. 1-10.

Horsfield, T. & Moore, F. (1857) A Catalogue of the Lepidopterous Insects in the Museum of the Hon. East-India Company. I. London.

Kurentzov, A. I. (1970) The Butterflies of the Far East USSR. Academy of Sciences of USSR, Siberia Division.

Marumo, N. (1923) List of Lepidoptera of the islands Tanegashima and Yakushima. J. Coll. Agr. Tokyo Imp. Univ., 8 : 135-206, Pl. 3.

Matsumura, S. (1911) Erster Beitrag zur Insekten Fauna von Sachalin. J. Coll. Agr. Tohoku Imp. Univ., Sapporo, 4 (1) : 1-145, Pl. 1-2.

Matsumura, S. (1928) New butterflies especially from the Kuriles. Insecta Matsumurana (Sapporo), 2 (4) : 191-201.

Ménétriès, E. (1857) Enumeratio corporum animalium musei imperialis academiae scientiarum petropolitanae classis insectorum ordo Lepidopterorum. Pars II. Lepidoptera Heterocera. pp. 121-123, Fig. 10.

Moore, F. (1865) On the Lepidopterous insects of Bengal. Proc. Zool. Soc. Lond. 1865 : 755-823, Pl. 41-48.

日本学士院 (1960) 明治前日本生物学史. Vol. 1, pp. 515-522. 日本学術振興会, 東京.

大南勝彦 (1973) ペテルブルグから来た黒船. 六興出版, 東京.

歴史研究会 (1966) 日本史年表. 岩波書店, 東京.

Takahashi, M. (1968) キマダラヒカゲの“平地型”と“山地型”に関する問題. Mature and Insects (Tokyo), 3 (12) : 2-5, pl.

Takahashi, M. (1970) Notes on two species belonging to the genus *Neope* (Satyridae) in Japan. Tyô to Ga, 21 (1/2) : 17-37.

Takahashi, M. (1970) キマダラヒカゲの4種のタケ, ササによる比較飼育. Suruga no Konchû (Shizuoka), (70) : 2027-2030.

Takahashi, M. (1972) 1971年7月下旬屋久島(鹿児島県熊毛郡)の蝶類. Satsuma (Kagoshima), 21 (62) : 41-44.

Takahashi, M. (1973) Diurnal behaviour of the larvae of two species of the genus *Neope* (Lepidoptera : Satyridae). Tyô to Ga, 24 (1) : 26-31.

Takahashi, M. (1973) キマダラヒカゲ属 *Neope* 2種の食性に関する資料. Kakôchô (Nagoya), 25 (94) : 1-6.

Takahashi, M. (1974) 日本産キマダラヒカゲ属 2種の起源についての仮説. くろせせり, (10) : 127-132.

Takahashi, M. (1976) 南千島のキマダラヒカゲ属 *Neope* について. Nature and Insects (Tokyo), 11 (3) : 14-15, Pl.

Takahashi, M. (1976) 南千島およびサハリン産キマダラヒカゲ属 *Neope* のタイプ標本について. Nature and Insects (Tokyo), 11 (7) : 17-18.

東京天文台 (1976) 理科年表. 丸善, 東京.

Zadornoff, N. (1974) Tsunami (in Russian) (西本昭治(訳, 1977) 北から来た黒船. 朝日新聞社, 東京)

#### 日本産キマダラヒカゲ属 *Neope* 2種の学名と原産地

近年, 日本産 *Neope* 属は2種の独立種に分離されたが, この両者に対して用いられるべき学名については未検討のままである。筆者は, これら日本産 *Neope* 2種に関するすべての原記載と, British Museum (Natural History) 所蔵の Butler が記載した *N. niphonica*, *N. japonica* のタイプ標本を検討し, サトキマダラヒカゲには *N. goschkevitschii* の学名を, ヤマキマダラヒカゲには *N. niphonica* の学名を用いるのが正しいと結論した。

*N. goschkevitschii* の原記載には, タイプ標本を Goschkevitsch が採集したことが記されているので, 彼の足跡を歴史的に検討すると, 1854年12月4日に下田港に到着し, 12月23, 24日の両日におきた安政地震と津波で Diana 号が大破したため, 1855年7月14日まで伊豆半島(主として下田, 戸田)に滞在したことが明らかとなった。Ménétriès の原著には図版が添付されており, この図から, *N. goschkevitschii* は明らかにサトキマダラヒカゲ春型と判断され, 本種のタイプ標本は1855年の春に伊豆半島(下田, 戸田またはその近傍)で採集されたものと思われる。

(高橋 昭)